

AMENDMENTS.

In the Specification

Please replace the first full paragraph on page 2, from lines 5 through 13 with the following paragraph:

The aliphatic polyisocyanate(s) employed in the invention can be any organic isocyanate compound containing at least two isocyanate functional groups, said isocyanate groups being aliphatic in nature. Suitable polyisocyanates include hexamethylene-1,6-diisocyanate; 2,2,4-trimethylhexamethylene diisocyanate; isophorone diisocyanate; ~~4,4'-diethylhexylmethane dicyclohexylmethane~~ diisocyanate. Alternatively, reaction products or prepolymers derived from the above may be utilized. For the purposes of the present invention, the preferred polyisocyanates are derivatives of hexamethylene-1,6-diisocyanate. The polyisocyanate compounds have a preferred isocyanate content of between 5 and 50%, with 20-25% being particularly preferred.

Please replace the paragraph that begins on page 2, line 30 and ends on page 3, line 6 with the following:

The aromatic polyamine employed can be any organic compound containing at least two primary or secondary amine groups, wherein said amine groups are substituted directly to an aromatic moiety. Suitable aromatic polyamines include diethyl toluediamine; dimethylthio toluediamine; 4,4'-methylenebis (2-isopropyl-6-methylaniline); ~~4,4'-methylenebis (2,6-diisopropylaniline)~~; ~~4,4'-methylenebis (2,6-dimethylaniline)~~; ~~4,4'-methylenebis (2,6-diethylaniline)~~; ~~4,4'-methylenebis (2-ethyl-6-methylaniline)~~; ~~4,4'-methylenebis (3-chloro-2,6-diethylaniline)~~. For the purposes of the present invention, diethyl toluediamine is particularly preferred.

In the Claims,

Please amend the claims as follows:

Claims 1-22 (canceled)

23. (Currently Amended) A method of forming a coating on the internal surface of a drinking water pipeline, the method comprising the steps of:

- (a) providing a first part comprising one or more aliphatic polyisocyanate,
- (b) providing a second part comprising one or more aromatic polyamines and one or more oligomeric polyamines blended together,
- (c) mixing together the first part and second part to form a mixture,
- (d) applying the mixture as a coating to the internal surface of a drinking water pipeline; and
- (e) allowing the coating to cure by reaction of the one or more aromatic polyamines and the one or more oligomeric polyamines with the one or more polyisocyanate, the coating suitable for contact with drinking water.

24. (Currently Amended) The method according to claim 23 wherein the polyisocyanate is selected from the group ~~comprising~~ consisting of hexamethylene-1, 6-diisocyanate; 2,2,4-trimethylhexamethylene diisocyanate; isophorone diisocyanate; and 4,4'-~~diethylhexylmethane~~ dicyclohexylmethane diisocyanate.

25. (Currently Amended) The method according to claim 23 wherein the aromatic polyamine is selected from the group ~~comprising~~ consisting of diethyl toluenediamine; dimethylthio toluenediamine; 4,4'-methylenebis (2-isopropyl-6-methylaniline); 4, 4'41-methylenebis (2,6-diisopropylaniline); 4, 4'41-methylenebis methylenebis (2,6-dimethylaniline); 4, 4'41-methylenebis methylenebis (2,6-diethylaniline); 4,41-methylenebis (2-ethyl-6-methylaniline); and 4, 4'41-methylenebis (3-chloro-2,6-diethylaniline).

26 (Previously Presented) The method according to claim 23 wherein the oligomeric polyamine contains at least two primary or secondary amine groups, the amine groups being either aliphatic, cycloaliphatic or aromatic in nature.

27. (Currently Amended) The method according to claim 26 wherein the oligomeric polyamine is selected from the group ~~comprising~~ consisting of poly (oxypropylene) diamines, poly (oxypropylene) triamines, and poly (oxytetramethylene)-di-p-aminobenzoates.
28. (Previously Presented) The method according to claim 27 wherein the oligomeric polyamines has a molecular weight in the range 400-6000.
29. (Previously Presented) The method according to claim 28 wherein the oligomeric polyamines has a molecular weight in the range 500-3000.
30. (Currently Amended) The method according to claim 23 wherein the said first part includes one or more amine reactive resins blended with the one or more polyisocyanates.
31. (Currently Amended) The method according to claim 30 wherein said amine reactive resin is diglycidyl ether of bisphenol A or ~~selected from the group comprising~~ Dipenta-erythritol pentaacrylate.
32. (Previously Presented) The method according to claim 23 wherein the mixture is applied through heated airless spray equipment.
33. (Previously Presented) The method according to claim 32 wherein said spray equipment includes a centrifugal spinning head or self-mixing spray gun assembly.
34. (New) The method of claim 23 wherein the step of allowing the coating to cure by reaction further comprises allowing the coating to cure reaction of the one or more aromatic polyamines and the one or more oligomeric polyamines with the one or more polyisocyanate, the coating suitable for contact with drinking water and the coating having a linear shinkage of less than 0.040 percent.

Remarks.

This preliminary amendment presents claim and specification amendments, some of which were not entered as after-final amendments. Applicant respectfully requests that these amendments be entered and the following remarks considered. In the Office Action of April 7, 2003, claims 23-33 stand rejected. In this amendment, claims 23, 24, 25, 27, 30, and 31 have been amended and claim 34 has been added. Reconsideration and allowance of all pending claims are respectfully requested in view of the following remarks.

A. Specification Objections

The Examiner objected to various misspellings in the specifications. These have been fixed in this amendment.

B. Claim Objections

The Examiner objected to various misspellings in the claims. These have been fixed in this amendment.

C. Section 112 rejections

Claims 24, 25, 27 and 31 stand rejected under 35 U.S.C. § 112 as being indefinite for improper Markush claims. These have been fixed in this amendment.

D. Section 103 rejections

Claims 23-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 0431 728 A1 (hereinafter the EP '728) in view of EP 0 936 235 A1 (hereinafter EP '235). The Examiner argues that EP '728 discloses all of the invention except for use in water pipelines, which would be obvious in light of EP '235.

To establish a prima facie case of obviousness under 35 U.S.C. § 103, three requirements must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. (M.P.E.P. 2143).

The combination of the coating from EP '728 and the application method of EP '235 fails to teach or suggest all claim limitations. For example, the combination of the coating of EP '728 and the spraying on pipelines as disclosed in EP '235 fails to disclose, teach or suggest "the coating suitable for contact with drinking water". EP '728 is drawn to coating substrates with abrasive resistant coatings. The coating of EP '728 comprises an isocyanate component, an amine terminated polyoxyalkylene component a chain extender and chemically sized filler particles. The filler particles are what gives the coating the abrasive resistance. (Page 3, lines 1-8 of EP '782). The sizing agent helps to bond the filler with the coating. The prior art must be considered in its entirety. (MPEP 2141.02). Nothing in EP '728 indicates it can be used in drinking water pipes or that it has been tested in drinking water pipes. EP '235 does not solve this problem. All EP '235 discloses is that the chemical composition disclosed in its own disclosure has been tested and is suitable for use in water pipes. By even if the Examiner is correct that the chemicals used in the '728 patent are similar to those of the '235 patent the entire formulation is not the same because the '235 patent does not disclose the use of filler material or chemical sizing, both of which could have a detrimental effect on drinking water quality or the ability of the coating to stay together in water. For example, if the filler material was to get into the water supply it could have a detrimental effect on the water quality. The chemical sizing could be toxic in water. The addition of these chemicals to the coating material might make the coating soluble in water or at least reduce its adherence in water. Thus, it is not enough for the Examiner to argue that the coating can be sprayed into pipes, it must be shown that the entire formulation of EP '728 is "suitable for contact with drinking water", as disclosed in Claim 24, as amended. Without evidence that the coating of EP '728 is safe for use in drinking water pipes, the rejection cannot be sustained.

Claims 24-33 depend from allowable claim 23. Therefore, claims 24-33 are in condition for allowance.

New claim 34 recites, in part, wherein "the coating having a linear shrinkage of less than 0.040 percent". This limitation is found neither in EP '728 or EP '235 nor in a combination of the two. Therefore the proposed combination does not disclose, teach or suggest the limitations of claim 34. Claim 34 is, therefore, allowable.

Conclusion

The Examiner is invited to telephone the undersigned at the telephone number listed below if it would in any way advance prosecution of this case. Although no additional fees are believed due, Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to **Deposit Account No. 19-3878**.

Respectfully submitted,

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Date

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